

## PATENT CLAIMS

1. A method for extraction of copper from an aqueous solution containing a large amount of sulphates in liquid-liquid extraction, **characterized in that** the viscosity of an extraction solution is adjusted within the range of 3 – 11 cP and that the volumetric ratio of the extraction solution and an aqueous solution in an extraction mixture to between 0.7 – 1.0, whereby the aqueous solution is dispersed into drops in the extraction solution.
2. A method according to claim 1, **characterized in that** the viscosity of the extraction solution is raised by raising the content of an extractant.
3. A method according to claim 2, **characterized in that** the viscosity of the extraction solution is raised by regulating the extractant content of the extraction solution in the range of 15 – 70 vol. %.
4. A method according to claim 1, **characterized in that** the ratio (O/A) between the organic solution and the aqueous solution coming to the extraction stage from outside is regulated in the range of 0.15 – 1.
5. A method according to claim 3, **characterized in that** in treating an aqueous solutions with a copper content of maximum 2 g/l, the viscosity of the extraction solution is raised by adjusting the content of the extractant in the extraction solution to the range of 15 – 25 vol. %.
6. A method according to claim 5, **characterized in that** the external pumping ratio of the extraction solution and the aqueous solution is adjusted to the range of 0.2 – 0.5 and the corresponding external pumping ratio between a stripped copper electrolyte and the aqueous solution of the extraction is adjusted to the range of 0.08 – 0.02.

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7. A method according to claim 3, **characterized in** that in treating an aqueous solution with a copper content of 2 – 4 g/l, the viscosity of the extraction solution is raised by adjusting the content of the extractant in the extraction solution to the range of 15 – 30 vol.%.
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8. A method according to claim 7, **characterized in** that the external pumping ratio of the extraction solution and the aqueous solution is adjusted to the range of 0.3 – 0.7 and the corresponding external pumping ratio between the stripped copper electrolyte and the aqueous solution of the extraction is adjusted to the range of 0.15 – 0.25.
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9. A method according to claim 3, **characterized in** that in treating an aqueous solution with a copper content of 4 – 8 g/l, the viscosity of the extraction solution is raised by adjusting the content of the extractant in the extraction solution to the range of 25 – 50 vol.%.
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10. A method according to claim 9, **characterized in** that the external pumping ratio of the extraction solution and the aqueous solution is adjusted to the range of 0.4 – 0.8 and the corresponding external pumping ratio between the stripped copper electrolyte and the aqueous solution of the extraction is adjusted to the range of 0.25 – 0.50.
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11. A method according to claim 3, **characterized in** that in treating an aqueous solution with a copper content of over 8 g/l, the viscosity of the extraction solution is raised by adjusting the content of the extractant in the extraction solution to the range of 40 – 70 vol.%.
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12. A method according to claim 11, **characterized in** that the external pumping ratio of the extraction solution and the aqueous solution is adjusted within the range of 1 – 4 and the corresponding external pumping ratio between the stripped copper electrolyte and the aqueous solution of

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the extraction is adjusted within the range of 0.8 – 3.

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13. A method according to claim 1, **characterized in** that the viscosity of the extraction solution is raised by using alifatic hydrocarbons, kerosenes, with a viscosity of 2.7 – 3.2 cP when measured at ambient temperature, as diluting agent for the extraction solution.
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14. A method according to claim 1, **characterized in** that the viscosity of the extraction solution is raised by using aromatic hydrocarbons, kerosenes, with a viscosity of about 3 cP when measured at ambient temperature, as diluting agent for the extraction solution.
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15. A method according to any of the above claim, **characterized in** that the viscosity of the extraction solution is raised by using a mixture of alifatic and aromatic hydrocarbons, with a viscosity of minimum 2.7 cP when measured at ambient temperature, as diluting agent for the extraction solution.
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16. A method according to claim 1, **characterized in** that the sulphate content of the aqueous solution fed to solvent extraction is minimum 40g/l.
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17. A method according to any of the above claim, **characterized in** that the extracting solutions flow through each stage of the extraction equipment at essentially the same time.
18. A method according to any of the above claim, **characterized in** that the extracting solutions flow through the washing and stripping stages of the equipment more slowly than the actual extracting stages.